

Remarks

Claims 1, 2, 12, 13, 16, 18 and 19 have been amended to identify the epoxy resin as being curable by an amine agent; and to indicate that the amine curing agent is present in stoichiometric excess over the amount required for complete curing of the epoxy resin. Support for these amendments may be found in the specification of the published application at, *inter alia*, paragraph [0008], third sentence; paragraph [0018], first three lines; paragraph [0020] and paragraph [0025]. Accordingly, no new prohibited matter has been introduced by any of the amendments.

1. Rejection under 35 U.S.C. § 103(a)

A. No. 05-60724 in view of Ghahramani

The Examiner has maintained his rejection of claims 1 to 9, 11, 12, 16, 17 and 19 as allegedly obvious over the English-language translation of Patent Application Public Disclosure No. 05-60724 (“No. 05-60724”) in view of U.S. Patent 6,340,741 to Ghahramani *et al.* (“Ghahramani”) for the reasons provided in the Office Action dated November 29, 2006 and the Advisory Action dated October 1, 2007.

Applicant submits that No. 05-60724 teaches the use of two different epoxy compounds in a membrane – a hydrophilic polythiol epoxy resin and a lipophilic polyamide epoxy resin (see, e.g., paragraph [0012] of the English-language translation of No. 05-60724). The polythiol epoxy resin and the polyamide epoxy resin are each composed of a base and a curing agent, wherein the base and the curing agent are present in a fixed ratio relative to each other (see, e.g., Example 1 and Table 1 of the English-language translation of No. 05-60724). For instance, in Example 1, the polyamide epoxy resin contains 100 mg of a base and 100 mg of a curing agent, while the polythiol epoxy resin contains 50 mg of a base and 50 mg of a curing agent. The polyamide and polythiol epoxy resins representing the remainder of the examples in Table 1, although labeled as comparative because they lack one of the two required epoxy resins or two sensing materials, also each contain equal amounts of a base and a curing agent. In each of these cases, one epoxy resin is cured with a polyamide curing agent and a second epoxy resin is

cured with a polythiol curing agent. As a matter of nomenclature, an epoxy resin cured with polyamide is denoted to be a polyamide epoxy resin, while an epoxy resin cured with polythiol is denoted to be a polythiol epoxy resin.

The advantages obtained in the No. 05-60724 disclosure are achieved by varying the amounts of the two epoxy compounds (*i.e.*, the polyamide epoxy resin and the polythiol epoxy resin) with respect to each other. As stated in paragraph [0014] of the English-language translation of No. 05-60724, "...preferred ion selectivity can be ensured by appropriately changing the mixing ratio between two epoxy resins having different hydrophilicities and lipophilicities...." However, the relative amounts of curing agent to base are not varied in the epoxy compounds. There is no teaching or suggestion in No. 05-60724 that is contrary to this observation, so a person of ordinary skill in the art would not be motivated to use excess curing agent.

In contrast, amended claim 1 of the subject application recites the use of a single epoxy resin curable by an amine curing agent, wherein the amine curing agent is present in a stoichiometric excess compared to the amount of curing agent required for curing the epoxy resin. Applicant has discovered that when present in stoichiometric excess, the amine agent functions as a chloride exchanger or chloride ion selective agent as well as curing agent. There is no teaching or suggestion of using excess curing agent in No. 05-60724. Instead, No. 05-60724 only teaches changes in the relative ratios of the polyamide epoxy resin and the polythiol epoxy resin to accommodate desired changes in the membrane's hydrophilicity or lipophilicity. Moreover, because the invention described in No. 05-60724 does not teach or suggest the presence of an excess of an amine curing agent as claimed by Applicant, the invention described in No. 05-60724 requires a mixture of a quaternary ammonium salt and an ionic compound of a cyclic quaternary ammonium cation and a high-molecular weight polymer anion to act as the chloride-sensing component of the membrane (as shown by Example 1 in Table 1 of No. 05-60724, and by contrast, comparative examples 7 and 8, which have both the polyamide and polythiol epoxy resins present but lack one of the two required chloride-sensing components). Accordingly, in view of the above discussion, Applicant submits that Applicant's claimed

invention, as recited in amended claim 1, is significantly different from what is disclosed in No. 05-60724 in terms of chemical composition as well as in terms of functionality.

Ghahramani cannot remedy the deficiencies present in No. 05-60724. Ghahramani describes a membrane for use in chloride ion-sensitive electrodes that also contains a quaternary ammonium salt as the chloride ion-selective component. The membrane is also described as containing a polymeric matrix of an epoxy resin and an amino compound but there is no teaching or suggestion of a chloride selective electrode membrane comprising a polymeric matrix wherein said matrix comprises an epoxy resin curable by an amine agent; and an amine curing agent selected from the group consisting of polyamides, amidoamines and mixtures thereof, wherein said amine curing agent is present in stoichiometric excess over the amount required for complete curing of the epoxy resin.

For at least the above-discussed reasons, No. 05-60724 and Ghahramani, either alone or in combination, do not render obvious Applicant's claimed invention. Applicant therefore requests that this rejection be withdrawn.

B. Craig in view of No. 05-60724

Claim 18 is rejected as allegedly obvious over U.S. Patent 6,015,480 to Craig *et al.* ("Craig") in view of No. 05-60724. According to the Examiner, it would have been obvious to use the chloride selective membrane of No. 05-60724 in the invention of Craig.

Applicant respectfully disagrees with the Examiner's rejection of Applicant's claim 18 based on the teaching of Craig in view of No. 05-60724 for at least the reasons discussed above in Section A, *i.e.*, that Craig, either alone or in combination with No. 05-60724, does not teach or suggest a sensor assembly comprising an electrode that comprises a chloride selective electrode membrane comprising a polymeric matrix wherein said matrix comprises an epoxy resin curable by an amine agent; and an amine curing agent selected from the group consisting of polyamides, amidoamines and mixtures thereof, wherein said amine curing agent is present in stoichiometric excess over the amount required for complete curing of the epoxy resin. Further, there is no

motivation to combine the teachings of Craig with No. 05-60724. Therefore, Applicant requests that this rejection be withdrawn.

2. **Allowable Subject Matter**

Claims 10, 13 to 15, 20 and 21 are objected to as being dependent on a rejected base claim, but are indicated by the Examiner as being allowable if rewritten in independent form.

Applicant believes that the comments submitted by Applicant in section 1 of the current Office Action are sufficient to result in an allowance of all of the pending claims.

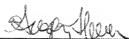
3. **Conclusion**

The foregoing amendments and remarks are being made to place the application in a condition for allowance. Applicant respectfully requests reconsideration and the timely allowance of the pending claims. Should the Examiner find that an interview would be helpful to further prosecution of this application, he is invited to telephone the undersigned at his convenience.

Except for issue fees payable under 37 C.F.R. 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or to credit any overpayment to Deposit Account 50-0310. This paragraph is intended to be a **Constructive Petition for Extension of Time** in accordance with 37 C.F.R. 1.136(a)(3).

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